PATENT – Docket Number: 06316D2 USA

In the Claims

1. (original)	A process for the recovery of at least one rare gas selected from the group consisting of krypton and xenon from a mixture comprising oxygen and at least one rare gas selected from the group consisting of krypton and xenon, said process comprising: separating feed air in a cryogenic air separation unit ("ASU") into nitrogen -rich overhead vapor and liquid oxygen ("LOX"); pressurising at least a portion of said LOX to provide pressurized LOX; at least partially vaporizing at least a portion of said pressurized LOX to provide said mixture such that at least about 50 mol % of said mixture is in the gaseous phase; feeding said mixture or a mixture derived therefrom at a pressure greater than the pressure of the part of the ASU producing said LOX to a rare gas recovery system; and separating said mixture feed in said rare gas recovery system into rare gas-lean gaseous oxygen ("GOX") and rare gas-enriched product, provided that, when said mixture feed is separated by selective adsorption, the concentration of xenon in the mixture feed is no greater than 50 times the concentration of xenon in air, wherein the rare gas recovery system is a gas-liquid contact separation system, said process further comprising contacting said mixture feed with LOX in the separation system to effect the separation. wherein the gas-liquid contact separation system is at least one heat exchanger, said process further comprising: feeding said mixture to the bottom of the or each heat exchanger; condensing a portion of said mixture ascending through the passages of the or each heat exchanger by indirect heat exchange against refrigerant to produce condensed mixture; and contacting ascending mixture with descending condensed mixture in

	said passages to effect the separation by dephlegmation.
2. (original)	The process according to Claim 1 wherein the indirect heat exchange takes place in the upper portion of the or each heat exchanger.
3. (original)	The process according to Claim 1 wherein the or each heat exchanger is reboiled by at least partially vaporizing rare gas-enriched product by indirect heat exchange against a first heating fluid.
4. (original)	The process according to Claim 1 further comprising warming the rare gas-lean GOX to ambient temperature by indirect heat exchange within the or each heat exchanger against a second heating fluid, said heat exchange taking place above the heat exchange to produce the condensed mixture.
5. (original)	Apparatus for the recovery of at least one rare gas selected from the group consisting of krypton and xenon from a pressurized mixture comprising oxygen and at least one rare gas selected from the group consisting of krypton and xenon, said apparatus comprising: a cryogenic ASU for separating feed air into nitrogen-rich overhead vapor and LOX; pressurizing means for pressurizing at least a portion of said LOX to provide pressurized LOX; vaporizing means for vaporizing at least about 50 mol % of said pressurized LOX to provide said mixture; and a rare gas recovery system for separating said mixture into rare gas-lean GOX and rare gas-enriched product wherein the rare gas recovery system is at least one heat exchanger for separating the mixture by dephlegmation.
6. (original)	Apparatus according to Claim 5 further comprising first heat exchange means provided in at least the upper portion of the or each heat exchanger for condensing ascending mixture by indirect heat exchange against a refrigerant.
7. (original)	Apparatus according to Claim 5 further comprising second heat exchange means provided for vaporizing rare gas-enriched product by indirect heat

	exchange against a first heating fluid.
8. (original)	Apparatus according to Claim 5 further comprising third heat exchange means provided above the first heat exchange means in the or each heat exchanger for warming rare gas-lean GOX to ambient temperature by indirect heat exchange against a second heating fluid.